

2/23/2007 Response to Office Action  
U.S.S.N. 10/689,167

RECEIVED  
CENTRAL FAX CENTER

Page 2

**FEB 23 2007****Amendments to the Claims:**

This listing of claims will replace all previous versions, and listings, of claims in the application.

**Listing of Claims:**

1. (canceled)
2. (canceled)
3. (canceled)
4. (canceled)
5. (canceled)
6. (canceled)
7. (canceled)
8. (canceled)
9. (canceled)
10. (canceled)

11. (currently amended) A MEM device comprising:

a movable mechanism residing adjacent a substrate;

an abrasion resistant material localized on a first portion of said movable mechanism; and

a first contact region used to attract said movable mechanism towards said substrate such

5 that said abrasion resistant material becomes operationally coupled to a second contact region,  
wherein said abrasion resistant material is disposed along said first portion of said movable  
mechanism, said first portion subject to abrasion as the abrasion resistant material becomes  
operationally coupled to said second contact region.

12. (original) The invention of claim 11 wherein said abrasion resistant material comprises a diamond material.

13. (canceled)

14. (original) The invention of claim 11 wherein said first contact region is localized on said substrate.

15. (original) The invention of claim 11 wherein said second contact region

Cabot Microelectronics Corporation  
870 North Commons Drive  
Aurora, IL, 60504  
Tel. (630) 375-2033

2/23/2007 Response to Office Action  
U.S.S.N. 10/689,167

Page 3

comprises an abrasion resistive material.

16. (original) The invention of claim 15 wherein said second contact region and said abrasion resistive material localized on a portion of said movable mechanism comprise a similar material.

17. (original) The invention of claim 11 wherein said second contact region comprises a first RF contact portion and a second RF contact portion such that when said movable mechanism is attracted towards said substrate, the abrasion resistive material shorts the first RF contact portion and second RF contact portion.

18. (original) The invention of claim 11 further comprising a third contact region, said third contact region operable to pull back said movable mechanism from being attracted to said second contact region.

19. (original) The invention of claim 11 wherein said movable mechanism further comprises a first anchor portion and a second anchor portion, said first and said second anchor portion integral to a top surface of said substrate.

20. (original) The invention of claim 11 wherein said movable mechanism comprises a second surface, said second surface defining a rib.

21. (original) The invention of claim 20 wherein said second surface comprises a metallic layer.

22. (canceled)

23. (canceled)

24. (original) The invention of claim 22 further comprising an integral enclosure that encloses said MEM device.

25. (original) The invention of claim 24 wherein said integral enclosure further comprises an electrical shield.

26. (original) The invention of claim 24 wherein said integral enclosure further comprises a pull-back contact.

27. (original) The invention of claim 11 wherein said second contact region resides on said substrate.

Cabot Microelectronics Corporation  
870 North Commons Drive  
Aurora, IL, 60504  
Tel. (630) 375-2033

3

28. (previously presented) The invention of claim 11 further comprising a dielectric layer deposited along said surface of said substrate such that when said first contact region is energized, said movable mechanism is not physically coupled to said second contact region.

29. (original) A MEM switching device, comprising:

a rib enforced lever mechanism residing along a surface of a substrate, said lever mechanism having at least one anchor lever mechanism portion extending from said surface;

a first contact region deposited on said substrate, said first contact energized for attracting said lever mechanism towards said substrate such that said lever mechanism becomes electrically coupled to a third contact region; and

a second contact region that pulls back said lever mechanism from being electrically coupled to said third contact region.

30. (original) The invention of claim 29 wherein said rib enforced lever mechanism comprises a rib that is integral to said lever mechanism.

31. (original) The invention of claim 30 wherein said rib comprises a conductive layer.

32. (canceled)

33. (original) The invention of claim 31 wherein said conductive layer comprises Diamond.

34. (original) The invention of claim 31 wherein said conductive layer comprises a conductive composition.

35. (original) The invention of claim 29 wherein said switching device comprises a planarized surface.

36. (canceled)

37. (canceled)

38. (original) The invention of claim 29 wherein said third contact region comprises a first and a second micro-strip line.

39. (currently amended) A micro-machined structure for enclosing at least one MEM device, said structure comprising:

a structure extending from a substrate and at least partially enclosing said at least one

Cabot Microelectronics Corporation  
870 North Commons Drive  
Aurora, IL, 60504  
Tel. (630) 375-2033

2/23/2007 Response to Office Action  
U.S.S.N. 10/689,167

Page 5

MEM device; and

5 a cover structure residing on a portion of said substrate structure,  
a contact region, said contact region provided on said cover substrate structure, said  
contact region acting as a pull-back contact for a MEM device residing on said substrate;  
wherein said micro-machined structure defines at least one tortuous path, wherein said  
tortuous path provides for a removal of material residing along said surface.

40. (canceled)

41. (canceled)

42. (previously presented) The invention of claim 39 wherein said contact region  
comprises a shielding member, said shielding member preventing passage of electromagnetic  
radiation.

43. (original) The invention of claim 39 further comprising a sealing member, said  
sealing member engaging said tortuous path such that said sealing member seals said enclosure.

44. (original) The invention of claim 43 further comprising a gaseous material  
provided in said sealed enclosure.

45. (original) The invention of claim 44 wherein said gaseous material comprises an  
inert gas.

46. (original) The invention of claim 44 wherein said gaseous material comprises an  
arc preventing gaseous material.

47. (original) The invention of claim 43 wherein said sealing member seals said  
enclosure in a vacuum sealed state.

48. (original) The invention of claim 39 wherein said tortuous path defines a  
labyrinth path.

49. (original) The invention of claim 39 further comprising a second MEM device,  
said second MEM device enclosed by said micro-machined structure.

50. (original) The invention of claim 39 wherein said micro-machined apparatus is an  
integral micro-machined structure.

51. (original) The invention of claim 39 wherein said micro-machined structure for

Cabot Microelectronics Corporation  
870 North Commons Drive  
Aurora, IL, 60504  
Tel. (630) 375-2033

2/23/2007 Response to Office Action  
U.S.S.N. 10/689,167

Page 6

enclosing at least one MEM device comprises diamond.

52. (currently amended) A method of fabricating a micro-machined apparatus, said method comprising the steps of :

providing a substrate;

fabricating a substrate structure, said substrate structure extending from said substrate;

and

fabricating a cover substrate structure residing on a portion of said substrate structure, said cover structure defining at least one tortuous channel; and

removing sacrificial material internal to said enclosure through said tortuous channel.

53. (original) The invention of claim 52 wherein said substrate structure comprises a vertical substrate structure.

54. (original) The invention of claim 52 further comprising the step of enclosing at least one MEM device in said micro-machined apparatus.

55. (original) The invention of claim 52 further comprising the step of enclosing a plurality of MEM devices in said micro-machined apparatus.

56. (canceled)

57. (original) The invention of claim 52 wherein said tortuous channel defines a labyrinth path.

Cabot Microelectronics Corporation  
870 North Commons Drive  
Aurora, IL, 60504  
Tel. (630) 375-2033

6